

Abstract

Transimpedance amplifiers (TIAs) are typically used within optical receiver modules to amplify weak photocurrents received from the photodetector. The TIA amplifies this weak photocurrent into an output voltage that is further provided to other stages of the optical receiver module. Since TIAs are used to amplify weak photocurrents, noise in the resultant amplification of the weak photocurrent is typically a problem. However, TIAs must not only provide low noise amplification of weak photocurrents, but must also operate when a much higher optical power is received by the photodetector and hence a much higher photocurrent is provided to an input port of the TIA. An elevated front end TIA (EFTIA) is thus provided that offers low noise performance while providing a wide dynamic range, which overcomes the deficiencies of the prior art. Furthermore, the EFTIA is provided absent a transistor switching circuit.